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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/078,933	05/14/98	BLANDY G	AT9-98-071

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2762	5

DATE MAILED: 03/02/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/078,933	Blandy
Examiner	**Group Art Unit**
Chameli Das	2762

☒ Responsive to communication(s) filed on *Dec 20, 1999*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-32* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-32* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-32 are rejected under 35 U.S.C. 102(a) as being anticipated by Kolawa et al, US Patent No. 5,784,553.

As per claim 1, Kolawa teaches **identifying a path within the method that is being executed** is shown in column 11 line 42-44 ("The dynamic symbolic execution is performed along **the path taken by an actual execution of the program**"), path taken by an actual execution of the program inherently including identifying a path within a the method that is being executed , **plurality of instructions are associated with the paths** is shown in column 24 line 30-32 ("The TGS Driver Program executes the **program for the path** that corresponds to the input initially chosen and, **for all of the instructions found in that path**"), **translating the first type instructions for the path being executed is** shown in column 3 line 34-42 (" computer program written in the JAVA programming language, the **computer program being represented by JAVA bytecodes after being compiled by a JAVA compiler**. The method includes the steps of reading the JAVA bytecodes; obtaining an input value for the computer program; **symbolically**

executing an instruction of the computer program represented in the JAVA bytecodes"), compiling JAVA program into **Java bytecode inherently including instructions are translated into second type instruction as claimed, unexecuted path remain untranslated** is shown in column 5 line 53-55 (" The original source code 11 comprises all types of files **used to express an uncompiled, that is, non-object code**, computer program, including definitional and declarative files"), **uncompiled that is non-object code** inherently including unexecuted path remain untranslated as claimed.

As per claim 2, Kolawa et al teach **executing second type instructions** for a path in response to a **loop back through** the path is shown in column 22 line 56-61 ("The SVM then gets the next **JAVA bytecode** (second type instruction) from the .class files (block 427). If all JAVA program instructions have not been symbolically executed (block 428), control returns to the top of the **control loop** (block 421) for processing of the next program instruction"), during execution of the routine is shown in column 26 line 41-43 ("A normal JAVA Virtual Machine can be used to execute the instrumented bytecodes").

As per claim 3, Kolawa et al teach **translated instruction for the path are executed in an order** is shown in column 25 line 60-64 (" the TGS Driver Program reads the JAVA Bytecodes (translated instruction) in the .class files for the module under test at step 480. The Module Testing Module 238 at step 482 decides on a **first sequence of methods to be executed**"), sequence of methods to be executed inherently including translated instructions are stored in an execution order.

As per claim 4, Kolawa teaches **identifying a path within the method that is being executed** is shown in column 11 line 42-44 ("The dynamic symbolic execution is performed along **the path taken by an actual execution of the program**"), path taken by an actual execution of the program inherently including identifying a path within a the method that is being executed , **bytecodes are associated with the paths** is shown in column 21 line 18-21 (" The SVM symbolically interprets the JAVA program under test using information stored in the JAVA **Bytecodes 210.** Upon completion, **symbolic expressions and associated path conditions** are output by the SVM for all required branch conditions (block 302)"), **compiling the byte codes** is shown in ABSTRACT line 3-5 ("The JAVA program comprises program statements and program variables represented as JAVA source code and compiled by a **JAVA compiler into JAVA bytecodes"**), **byte codes are compiled into native machine code** is shown in column 17 line 51-54 ("The bytecodes are a relatively high-level representation of the source code **so that some optimization and machine code generation (via a just-in-time compiler 214) can be performed** at that level"),

Kowala teaches bytecodes **remain uncompiled** is shown in column 5 line 53-55 (" The original source code 11 comprises all types of files **used to express an uncompiled**, that is, non-object code, computer program, including definitional and declarative files"), uncompiled files inherently including unexecuted path as claimed.

Claim 5 is rejected under the same reason set forth in connection of rejection of claim 2.

Claim 6 is rejected under the same reason set forth in connection of rejection of claim 3.

As per claim 7, Kolawa et al teach **JIT in compiling method** is shown in column 17 line 62-65 ("optionally turned into machine code by the **Just-In-Time Compiler** 214. The JAVA Interpreter and Just-In-Time Compiler operate in the context of a Runtime System 222")

As per claim 8, Kolawa et al teach **data structure** is used during compiling of the method **store information about a path** as claimed is shown in column 6 line 37-42 (" FIG. 2D is a **data structure for storing block and branch analysis information** extracted from the original computer program. Each program is broken down into a series of code blocks comprising one or more program statements **occurring along a single path of execution**").

As per claim 9, Kolawa et al teach **data structure stores the native machine codes** is shown in column column 6 line 37-42 and column 17 line 51-54 ("The bytecodes are a relatively high-level representation of the source code **so that some optimization and machine code generation (via a just-in-time compiler 214) can be performed** at that level") and (" FIG. 2D is a **data structure for storing block and branch analysis information** extracted from the original computer program.").

As per claim 10, Kolawa et al teach **data structure is a JIT station** is shown in column 5 line 52-54 ("FIG. 2D is a data structure for storing block and branch analysis information extracted from the original computer program"), **storing block and branch analysis information inherently including JIT compiler information** as claimed.

As per claim 11, Kolawa et al teach **identifying the method** that is to be executed is shown in column 20 line 36-38 ("Module 41 **identifies the branch condition controlling the execution of that code block**"), **compiling the bytecodes** is shown in column 26 line 44-47 ("FIG. 23 is a flow diagram of the steps for handling **JAVA bytecode instrumentation**. At step 492, the JAVA Parser 230 reads the .class files 210 generated by the **JAVA Compiler** 208 and the .Java files 200 of the original source code").

As per claim 12, Kolawa et al teach unexecuted paths remain in a bytecode form is shown in column 5 line 53-55 (" The original source code 11 comprises all types of files **used to express an uncompiled, that is, non-object code**, computer program, including definitional and declarative files"), **uncompiled that is non-object code** inherently including unexecuted path as claimed.

Claim 13 is rejected under the same reason set forth in connection of the rejection of claim 3.

Claim 14 is rejected under the same reason set forth in connection of the rejection of claim 2.

Claim 15 is rejected under the same reason set forth in connection of the rejection of claim 8.

As per claim 16, Kolawa **teach data structure stores the instruction** is shown in column 4 line 36-38 ("IG. 2D is a **data structure for block and branch analysis information stored** in the program database of FIG. 2A")

Claim 17 is rejected under the same reason set forth in connection of the rejection of claim 4

Claim 18 is rejected under the same reason set forth in connection of the rejection of claim 2.

Claim 19 is rejected under the same reason set forth in connection of the rejection of claim 3.

Claim 20 is rejected under the same reason set forth in connection of the rejection of claim 10.

Claim 21 is rejected under the same reason set forth in connection of the rejection of claim 8.

Claim 22 is rejected under the same reason set forth in connection of the rejection of claim 9.

Claim 23 is rejected under the same reason set forth in connection of the rejection of claim 10.

Claim 24 is rejected under the same reason set forth in connection of the rejection of claim 11.

Claim 25 is rejected under the same reason set forth in connection of the rejection of claim 12.

Claim 26 is rejected under the same reason set forth in connection of the rejection of claim 3.

Claim 27 is rejected under the same reason set forth in connection of the rejection of claim 2.

Claim 28 is rejected under the same reason set forth in connection of the rejection of claim 8.

Claim 29 is rejected under the same reason set forth in connection of the rejection of claim 16.

Claim 30 is rejected under the same reason set forth in connection of the rejection of claim 11.

Claim 31 is rejected under the same reason set forth in connection of the rejection of claim 3.

Claim 32 is rejected under the same reason set forth in connection of the rejection of claim 2.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wu et al teach System and process for object rendering on thin client platforms, US Patent No. 5987256.

Heisch teaches method and system for reordering the instructions of computer program to optimize its execution, US Patent No. 6,006,033.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chameli Das whose telephone number is 703-306-3014. The examiner can normally be reached on Monday-Friday from 8:00 A.M to 4:30 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Tariq Hafiz can be reached at 703-305-9643. The fax number for this group is 703-308-1396. An inquiry of general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is 703-305-9600.

CDAS

2/26/2000

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Supervisory Patent Examiner
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